



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/840,230	05/07/2004	Jang-keun Oh	116511-00131	9692
27557	7590	10/28/2005		
BLANK ROME LLP 600 NEW HAMPSHIRE AVENUE, N.W. WASHINGTON, DC 20037			EXAMINER HOPKINS, ROBERT A	
			ART UNIT	PAPER NUMBER

1724

DATE MAILED: 10/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/840,230

Applicant(s)

OH ET AL.

Examiner

Robert A. Hopkins

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13 and 14 is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4-19-05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

Claims 3-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 line 2 recites "the second outlet". There is a lack of antecedent basis for "the second outlet" in previous claim limitations. Correction is requested. Claims 4-12 depend on claim 3 and hence are also rejected.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4,9,10 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Watson et al(2511387).

Watson et al teaches a cyclone separating apparatus comprising a first cyclone(17) for separating dust from dust-laden air, a plurality of second cyclones(26) for separating minute particles of dust from dust-laden air by a second separation of dust from dust-laden air with a centrifugal force, and an inlet-outlet cover(24) disposed on an upper part of the first cyclone and the second cyclones, for a fluid communication between the first cyclone and second cyclones(air and particles from opening 23 enter second cyclones 26), the inlet-outlet cover through which purified air

Art Unit: 1724

cleaned by the second cyclone is discharged(through off take pipe 27). Watson et al further teaches wherein the inlet-outlet cover comprises an air channel connected so air discharged from the first cyclone flows into the second cyclone, and a plurality of outlet channels penetrating into the inlet-outlet cover so air can be discharged therethrough from the second cyclone. Watson et al further teaches wherein a predetermined portion of the outlet channel is inserted into a second outlet(28) when the inlet-outlet cover is joined to the second cyclone allowing air to be discharged through the outlet channel. Watson et al further teaches wherein one end of the outlet channel is connected to the second outlet formed on one side of the second cyclone, and the other end is open in an upward direction of the inlet-outlet cover. Watson et al further teaches wherein the cyclone separating apparatus further comprises a cyclone cover(see figure 1) installed on an upper part of the inlet-outlet cover. Watson et al further teaches wherein the cyclone cover is substantially in a conical shape with open upper and lower spaces.

Claims 1-4,9 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Davenport et al(2553175).

Davenport et al teaches a cyclone separating apparatus comprising a first cyclone(10) for separating dust from dust-laden air, a plurality of second cyclones(35) for separating minute particles of dust from dust-laden air by a second separation of dust from dust-laden air with a centrifugal force, and an inlet-outlet cover(31) disposed on an upper part of the first cyclone and the second cyclones, for a fluid communication between the first cyclone and second cyclones(air and particles from opening 42 enter second cyclones 35), the inlet-outlet cover through which purified air

Art Unit: 1724

cleaned by the second cyclone is discharged(through off take pipe 34). Davenport et al further teaches wherein the inlet-outlet cover comprises an air channel connected so air discharged from the first cyclone flows into the second cyclone, and a plurality of outlet channels penetrating into the inlet-outlet cover so air can be discharged therethrough from the second cyclone. Davenport et al further teaches wherein a predetermined portion of the outlet channel is inserted into a second outlet(27) when the inlet-outlet cover is joined to the second cyclone allowing air to be discharged through the outlet channel. Davenport et al further teaches wherein one end of the outlet channel is connected to the second outlet formed on one side of the second cyclone, and the other end is open in an upward direction of the inlet-outlet cover. Davenport et al further teaches wherein the cyclone separating apparatus further comprises a cyclone cover(see figure 1) installed on an upper part of the inlet-outlet cover .

Allowable Subject Matter

Claims 5-8,11,12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 5 recites "wherein the other end of the outlet channel is cut into a slope inclining toward a central direction of the inlet-outlet cover". Watson et al and Davenport et al teaches an other end of an outlet channel which is parallel with the inlet outlet cover. It would not have been obvious to someone of ordinary skill in the art at the time of the invention to provide wherein the other end of the outlet channel is cut into a slope inclining toward a central direction of the inlet-outlet cover because neither

Art Unit: 1724

Watson et al nor Davenport et al suggests such a modification. Claims 6-8 depend on claim 5 and hence would also be allowable upon incorporation of claims 5,4,3, and 2 into claim 1.

Claim 11 recites "wherein the second cyclones are installed on an outer periphery of the first cyclone to enclose the first cyclone, and , the first cyclone and second cyclones are integrally formed". Watson et al and Davenport et al teaches second cyclones installed on an inner periphery of the first cyclone. It would not have been obvious to someone of ordinary skill in the art at the time of the invention to provide wherein the second cyclones are installed on an outer periphery of the first cyclone to enclose the first cyclone, and , the first cyclone and second cyclones are integrally formed because neither Watson et al nor Davenport et al suggests such a modification. Claim 12 depends on claim 11 and hence would also be allowable upon incorporation of claims 11,4,3, and 2 into claim 1.

Claims 13 and 14 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: .

Claim 13 recites "a vacuum cleaner comprising ... ; and an inlet-outlet cover installed on an upper part of the first cyclone and the second cyclones, for fluid communication between the first cyclone and the second cyclones through which dust-removed air from the second cyclone is discharged". Watson et al and Davenport et al teaches a separator for an industrial separation and does not include structure for the cyclone separating apparatus installed in a vacuum cleaner main body. Conrad et

Art Unit: 1724

al(6334234) and Bair et al(6428589) both teach a vacuum cleaner having a cyclone separating apparatus, however neither reference teaches an inlet-outlet cover installed on an upper part of the first cyclone and the second cyclones, for fluid communication between the first cyclone and the second cyclones through which dust-removed air from the second cyclone is discharged. It would not have been obvious to someone of ordinary skill in the art at the time of the invention to provide a vacuum cleaner comprising ... ; and an inlet-outlet cover installed on an upper part of the first cyclone and the second cyclones, for fluid communication between the first cyclone and the second cyclones through which dust-removed air from the second cyclone is discharged because neither Watson et al nor Davenport et al nor Conrad et al nor Bair et al suggest such a modification. Claim 14 depends on claim 13 and hence is also allowed.

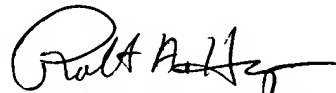
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Hopkins whose telephone number is 571-272-1159. The examiner can normally be reached on Monday-Friday, 7am-4pm, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1724

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rah
October 26 ,2005


ROBERT A. HOPKINS
PRIMARY EXAMINER
AM. 1724